

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) An unlicensed-radio access network for connecting a mobile station to a core network portion of a licensed-radio mobile network, said unlicensed- radio access network comprising: including
an access controller connected to said core network portion,
a broadband packet-switched network connected to said access controller; and
having
a plurality of access points, each said access point defining at least part of a mini-cell coverage area and supporting an unlicensed-radio interface permitting communication between mobile stations located within a respective mini-cell and said access controller, wherein said access controller comprises
a first link control relay module (35) for relaying packet service frames and
a second transport protocol module (32, 33), ~~characterised by comprising~~
a third link control module (34) arranged between said first and second modules for receiving packet service frames from said first link control relay module (35) determining a transmission priority assigned to each packet frame and forwarding said packet service frames to said first transport protocol module (32, 33) in an order corresponding to said assigned transmission priority.
2. (Currently Amended) The [[An]] access network as claimed in claim 1, wherein ~~further characterised in that~~ said third link control module (34) comprises a plurality of buffers (410) for storing said packet service frames, each buffer corresponding to a specific transmission priority and being adapted to receive packet service frames of the specific transmission priority only.

3. (Currently Amended) The ~~[[An]]~~ access network as claimed in claim 2, wherein ~~further characterised in that~~ said third link control module (34) is further adapted to determine an acknowledgement mode of a packet service frame and to store a packet service frame assigned an acknowledgement mode in a buffer (110) for a period after transmission until acknowledgement said frame is received.

4. (Currently Amended) The ~~[[An]]~~ access network as claimed in claim 2 or 3, wherein ~~further characterised in that~~ said third link control module (34) comprises multiple sets (~~1111-111n~~) of said plurality of buffers (110), each set corresponding to a specific mobile station and being adapted to receive packet service frames destined for the specific mobile station only.

5. (Currently Amended) The ~~[[An]]~~ access network as claimed in claim 1 ~~any previous claim, wherein further characterised in that~~ at least one access point (20') is provided with a transport protocol module (~~22, 23~~), adapted to receive packet service frames from said access controller (30') and an unlicensed radio module (~~11, 212, 213~~) for exchanging packet service frames with a mobile station over an unlicensed-radio interface, ~~characterised in that~~ said access point further including ~~includes~~ a link control relay module (24) adapted to
queue packet service frames received from said transport protocol module (~~22, 23~~),
determine a transmission priority assigned to each packet frame and
forward said packet service frames to said unlicensed radio module (~~11, 212, 213~~) in an order corresponding to said assigned transmission priority.

6. (Currently Amended) The ~~[[An]]~~ access network as claimed in claim 5, wherein ~~further characterised in that~~ said link control relay module (24) is further adapted to determine an acknowledgement mode of a packet service frame and to assign each packet service frame to an unlicensed-radio protocol with an equivalent acknowledgement mode.

7. (Currently Amended) The ~~[[An]]~~ access network as claimed in claim 1 ~~any previous claim, characterised in that wherein~~ said transport protocol modules provide for a datagram service over the Internet Protocol ~~(IP)~~.

8. (Currently Amended) The ~~[[An]]~~ access network as claimed in claim 7, wherein ~~further characterised in that~~ said datagram service is the User Datagram Protocol (UDP).

9. (Currently Amended) A mobile station adapted to exchange packet service frames with a core network portion of a licensed-radio mobile network via an unlicensed- radio access network, said mobile station comprising: including
a first link control module ~~(15)~~ for generating packet service frames and
a second unlicensed- radio module ~~(11)~~ for exchanging packet service frames with an access point of said unlicensed-radio access network over an unlicensed-radio interface, ~~characterised in that said mobile station further comprises~~
a third link control module ~~(14)~~ arranged between said first and second modules for
receiving packet service frames from said first link control module ~~(15)~~
determining a transmission priority assigned to each packet frame and
forwarding said packet service frames to said second unlicensed-radio module ~~(11)~~ in an order corresponding to said assigned transmission priority.

10. (Currently Amended) The ~~[[A]]~~ mobile station as claimed in claim 9, wherein ~~further characterised in that~~ said third link control module ~~(14)~~ comprises a plurality of buffers ~~(110)~~ for storing said packet service frames, each buffer corresponding to a specific transmission priority and being adapted to receive packet service frames of the specific transmission priority only.

11. (Currently Amended) The ~~[[A]]~~ mobile station as claimed claim 10, wherein ~~further characterised in that~~ said third link control module ~~(14)~~ is further adapted to determine an acknowledgement mode of a packet service frame and to store

a packet service frame assigned an acknowledgement mode in a buffer (440) for a period after transmission until acknowledgement said frame is received.

12. (Currently Amended) A method in an unlicensed-radio access network for connecting a mobile station to a core network portion of a licensed-radio mobile network, said unlicensed-radio access network including
an access controller connected to said core network portion,
a broadband packet-switched network connected to said access controller and
~~having~~ a plurality of access points, each said access point defining a mini-cell coverage area and supporting an unlicensed-radio interface permitting communication between mobile stations located within a respective mini-cell and said access controller, wherein said access controller comprises:
a link control relay module (35) for relaying packet service frames and
a transport protocol module (32,33) ~~said method being characterised by in~~
said access controller, receiving packet service frames from said link control relay module, determining a transmission priority assigned to packet frames destined for a mobile station and forwarding said packet service frames to said second transport protocol module in accordance with a first algorithm based on said assigned transmission priority.

13. (Currently Amended) The [[A]] method as claimed in claim 12, further comprising ~~further characterised by~~ the steps of:
in said access controller determining an acknowledgement mode of a packet service frame received from said link control relay module and
storing a packet service frame assigned an acknowledgement mode for a period after transmission until acknowledgement said frame is received.

14. (Currently Amended) The [[A]] method as claimed in claim 12 ~~or 13~~, further comprising ~~characterised by~~ the steps of:
in said access controller determining the destination mobile station of packet service frames received from said link control relay module and

applying a second algorithm to select among packet service frames destined for different mobile stations before applying said first algorithm.

15. (Currently Amended) The ~~[[A]]~~ method as claimed in claim 12 ~~any one of claims 12 to 14~~ further comprising ~~characterised by~~ the steps of:

in an access point, receiving packet service frames from said access controller, determining the assigned destination priority of said packet service frames; and ~~and~~,

forwarding said packet service frames to a mobile station in an order defined by a third algorithm based on destination priority.

16. (Currently Amended) The ~~[[A]]~~ method as claimed in claim 12 ~~any one of claims 12 to 15~~, further comprising ~~characterised by~~ the steps of:

in an access point, receiving packet service frames from said access controller, determining an acknowledgement mode of a packet service frame; and, ~~and~~

assigning each packet service frame to an unlicensed-radio protocol with an equivalent acknowledgement mode.